

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT**

CLASSIFICATION TITLE Transportation Engineering Technician (TET)	DISTRICT/DIVISION/OFFICE District 7/Construction/Materials Field Testing / Acceptance Lab	
WORKING TITLE Field Material Tester	POSITION NUMBER 907-506-3175-XXX	EFFECTIVE xx/xx/xx

As a valued member of the Caltrans team, you make it possible for the Department to improve the mobility across California by being innovative and flexible; reporting to work regularly and on time; working cooperatively with team members and others; and treating others fairly, honestly and with respect. Your efforts are important to each member of the team, as well as those we serve.

GENERAL STATEMENT: Under the direction of a Senior Transportation Engineer, the Transportation Engineering Technician performs the compaction testing of soils, subbase, base, and asphalt concrete pavement. The Transportation Engineering Technician also performs the testing of concrete beams, air content testing for concrete, sampling of soils and construction materials. Transportation Engineering Technician is required to possess current certification in the California Test Methods and the certification in the Fundamentals of Radiation Safety and Nuclear Gage Operation. The Transportation Engineering Technician should be capable of obtaining the certification in the California Test Methods to work in the D7 Materials Acceptance Lab when directed by the Senior Transportation Engineer.

TYPICAL DUTIES:

Percentage Job Description

Essential (E)/Marginal (M)¹

- 40% (E) Under the direction of a lead person, performs technical testing in accordance with the California Test Methods of soils and aggregates for earthwork, subbase, and base. Assist in receiving and processing all District 7 samples for required tests on soil and aggregate for earthwork, sub base, base, asphalt concrete, Portland Cement Concrete and treated soils. These include sample preparation, grading analysis, durability, LART, cleanness value, specific gravity, sand equivalent, unit weight of loose aggregate, determination of moisture content of soil and aggregate. Prepare and test for relative compaction of soil. Determination of bulk specific gravity of bituminous mix of HMA cores, determination of asphalt content of the mix by Ignition Oven.
- 25%(E) Performs technical testing in accordance with the California Test Methods of asphalt concrete pavement as well as the flexural strength testing of rigid pavements (i.e. Portland Cement Concrete, Rapid Set Concrete and Polyester Concrete, etc.), air content testing of concrete, fabricating concrete cylinders and concrete beams, gradation testing, conducting sand equivalent tests and sampling of soils and construction materials.

- 10%(E) Preparation of field testing reports and submittal of the completed reports to the Resident Engineer.
- 10%(M) Assists in the calibration, maintenance and inventory of nuclear gages and other field testing equipment.
- 5%(E) Attend construction pre-construction meetings and recommends procedures for conducting the material testing safely. Recommends the testing frequency based on the Construction Manual or Quality Control/Quality Assurance (QC/QA) guidelines or the Special Provisions and may serve in the capacity as an Assistant Radiation Safety Officer under the direction of the Radiation Safety Officer and supervision of the Senior Transportation Engineer.
- 5%(E) Visits job sites and materials laboratories to witness material placement, sampling, and testing to see that the methods being used conform to the California Test Methods.
- 5%(M) Assist in budgeting and supplies for the laboratory.

SUPERVISION AND GUIDANCE RECEIVED

Guidance is received from a Senior Construction Engineer. The employee must employ considerable initiative to meet specific work commitments and schedules.

SUPERVISION EXERCISED OVER OTHERS

None.

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS

- Knowledge of materials used in state transportation projects.
- Knowledge of how materials are placed, sampled, and tested.
- Knowledge of construction contract documents including plans and specifications.
- Knowledge of the Standard Specifications and Special Provisions relating to material testing.
- Knowledge of field testing frequencies shown in the Construction Manual, in the QC/QA procedures, or as outlined in the Special Provisions.
- Ability to interpret material test data and visually recognize basic material properties throughout production and placement.
- Ability to work independently, make clear recommendations, prepare concise reports/documentation, and work constructively with others.
- Analytical determination of material acceptability and interpretation of material problems.

Knowledge of construction materials, testing and evaluation of construction materials, equipment used to test construction materials as well as the operation of nuclear gages and the safe handling and storage of this equipment.

This position requires the understanding of applied soil mechanics for the construction of pavements, embankments, foundations, as well as the equipment for testing construction materials and soils, the

evaluation of state of the art equipment for testing soils, aggregates, and pavements, the test methods used by Caltrans, and the analysis and interpretation of test result data.

CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS

Failure to follow the testing procedures will provide a false reading as to the strength and durability of the underlying soil or roadway pavement material which may result in an inferior material being placed within the state transportation system. This can lead to a premature need for maintenance to replace or repair the work that was done incorrectly. The field material testing engineer needs to follow the testing procedure and maintain his current California Test Method Certifications. He also needs to make sure that all field testing apparatus has current calibration.

PUBLIC AND INTERNAL CONTACTS

There is no contact with the general public. The employee will need to prepare field testing reports.

The employee will be required to keep in constant communication with the field material testing scheduler, and with the construction inspectors at the job site. He will also need to communicate with Resident Engineers, the Quality Control/Quality Assurance coordinator, and other material offices.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The employee must be capable of working at different time schedules both day and night as well as weekends depending on the project requirements. The employee must be capable of moving up to 100 pounds. The employee must be capable of lifting samples as heavy as 60 pounds. The employee will need to be able to develop and maintain cooperative working relationships, be flexible enough to respond appropriately to difficult situations, and recognize issues and varied responses due to the diverse personalities of contacts and co-workers.

WORK ENVIRONMENT

80% of the time, the employee will be subject to natural climatic conditions while working in the field during daylight and evening hours. The employee will be exposed to traffic and road construction noise, dust, and construction material odors. The employee will be required to wear a Caltrans hard hat and vest (required white clothing with reflective markers for night work) along with his own personal work boots. Safety glasses and hearing protection may also be required at all times. The employee will need to be aware of the various hazards around their work area such as: high speed traffic, construction equipment, drop offs, obstructions, construction equipment guide wires, hot asphalt concrete, tack coats, wet concrete, and airborne mists or particulates of chemical/materials used on the construction site. The employee will be required to be alert to any possible danger or hazard that can occur in a transportation construction project. The employee is always to prioritize safe working conditions.

15% of the time, the employee will be driving a state vehicle to various locations throughout the district and state and various times in the day and night. The employee will drive defensively obeying all traffic laws and will complete the State of California Defensive Driving Class every 4 years. The employee will adhere to all state and department policies regarding care and

maintenance of assigned state vehicle.

5% of the time, the employee will be at various office and indoors training areas. These will be similar to the office environment in that they will be indoors in a climate-controlled environment with artificial lighting. While in the office, incumbent will work in a climate-controlled office under artificial light. However, due to periodic problems with the heating and air conditioning, the building temperature may fluctuate. Requires manual dexterity to operate computer for preparation of reports and various forms.

I have read and understand the duties listed above and can perform them with/without reasonable accommodation. (If you believe you may require reasonable accommodation, please discuss this with the hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

EMPLOYEE (print name)

DATE

SIGNATURE

DATE

I have discussed the duties with and provided a copy of this duty statement to the employee named above.

Huey-Min Tzou

DATE

SUPERVISOR (print name)

SIGNATURE

DATE